

Claims

- [c1] An assembly of an integrated circuit package and a substrate comprising;
- a plurality of I/O pads located in an area-array configuration on a surface of the integrated circuit package;
 - a plurality of contact pads on a surface of said substrate;
 - a plurality of electrically conductive connectors, each comprising a first contact surface, a second contact surface, and a flexible portion interconnecting said first and second contact surfaces;
 - each said flexible portion is comprised of at least two parallel and flexible conductors, wherein said conductors are electrically insulated from each other for a portion of their lengths;
 - the first contact surface of each of said connectors is joined to an I/O pad of the package; and
 - the second contact surface of each of said connectors contacts a contact pad on said substrate;
- whereby each I/O pad on the surface of the integrated circuit package is electrically connected to a contact pad on the substrate by a connector.
- [c2] The assembly according to claim 1, wherein the at least

two parallel and flexible conductors of each connector are flexed in the same direction.

- [c3] The assembly according to claim 2, wherein the second contact surface of each connector is pressed against a contact pad of said substrate to thereby provide a de-mountable electrical connection between said contact pad of said substrate and said second contact surface.
- [c4] The assembly according to claim 3, wherein said flexible portion of each connector projects at an angle from the first contact surface of the connector and is flexed in a direction generally toward the surface of the integrated circuit package.
- [c5] The assembly according to claim 1 wherein the second contact surface of the connector is joined to a contact pad on the substrate by bonding material.
- [c6] The assembly according to claim 5, wherein the bonding material is solder.
- [c7] The assembly according to claim 4 wherein connectors are arranged and oriented on the surface of the integrated circuit package around the geometric center of the package such that flexing of the parallel conductors of each connector is in a direction towards the geometric center of the package.

- [c8] The assembly according to claim 7, wherein the distance between the at least two parallel conductors corresponds to at least 10 percent of the length of the portion of the length of the conductors which are insulated from each other.
- [c9] The assembly according to claim 8, wherein each connector further comprises a tab portion extending from the first contact surface and said tab portion is generally coplanar with the first contact surface.
- [c10] The assembly according to claim 9, wherein each connector is made of flat, metallic, electrically conductive material, folded to form the first and second contact surfaces and the contact surfaces are coated with a different metal.
- [c11] The assembly according to claim 10, wherein the flexible portion is substantially perpendicular to the first contact surface and the second contact surface is generally parallel to the first contact surface.
- [c12] The assembly according to claim 11, wherein each said at least two parallel and flexible conductors of a connector have extremities that are joined together to form the first and second contact surfaces.

- [c13] An integrated circuit package comprising:
a plurality of I/O pads located in an area-array configuration on a surface of the integrated circuit package;
a plurality of electrically conductive connectors, each comprising a contact surface and a flexible portion connected to said contact surface;
each said flexible portion is comprised of at least two parallel and flexible conductors, wherein said conductors are electrically insulated from each other for a portion of their lengths; and
the contact surface of each of said connectors is joined to an I/O pad on the surface of the package.
- [c14] The integrated circuit package according to claim 13, wherein the distance between the at least two conductors corresponds to at least 10 percent of the length of the portion of the length of the conductors which are insulated from each other.
- [c15] The integrated circuit package according to claim 14, wherein each connector further comprises a tab portion extending from the contact surface and said tab portion is generally coplanar with the contact surface.
- [c16] The integrated circuit package according to claim 15, wherein each connector is made of flat, metallic, electrically conductive material, folded to form the contact sur-

face and the contact surface is coated with a different metal.

[c17] The integrated circuit package according to claim 16, wherein the flexible portion is substantially perpendicular to the contact surface.

[c18] The integrated circuit package according to claim 17, wherein each said flexible portion is comprised of two parallel and flexible conductors.

[c19] A connector for electrically interconnecting an I/O pad located in an area-array configuration of I/O pads on a surface of an integrated circuit package and one of a plurality of contact pads on a surface of a substrate, said connector comprising;
a first contact surface;
a second contact surface;
a flexible portion is comprised of at least two parallel and flexible conductors, wherein said conductors are electrically insulated from each other for a portion of their lengths; and wherein said at least two parallel and flexible conductors are joined together at their extremities to form said first and second contact surfaces.

[c20] The connector according to claim 19, wherein the distance between the at least two conductors corresponds

to at least 10 percent of the length of the portion of the length of the conductors where the conductors are insulated from each other.

- [c21] The connector according to claim 20, wherein said connector further comprises a tab portion extending from the first contact surface and said tab portion is generally coplanar with the first contact surface.
- [c22] The connector according to claim 21, wherein the connector is made of flat, metallic, electrically conductive material, folded to form the contact surfaces and the contact surfaces are coated with a different metal.
- [c23] The connector according to claim 22, wherein the flexible portion is substantially perpendicular to the first contact surface and the second contact surface is generally parallel to the first contact surface.
- [c24] The connector according to claim 23, wherein each said flexible portion is comprised of two parallel and flexible conductors.